What is claimed is:

1. A method for processing seismic data comprising:

   a) acquiring seismic data;

   b) transforming said seismic data to a frequency domain;

   c) forming a plurality of minimal frequency subsets comprising selected frequencies;

   d) imaging said selected frequencies to form frequency images; and

   e) compositing said frequency images to form a composited migration image.

2. The method of claim 1 wherein forming said plurality of minimal frequency subsets further comprises selecting frequencies for the minimal frequency subsets according to $f_n = a(z)^{-n} f_0$ for $n = 0$ to $n = N$ where $N = \dfrac{\log f_0 - \log f_1}{\log \alpha(z)}$.

3. The method of claim 1 further comprising reducing the number of frequencies as depth increases.

4. The method of claim 1 further comprising reducing the number of frequencies as depth increases according to $\alpha(z) = \dfrac{1}{\sqrt{1+\left(\dfrac{k_h}{k_z}\right)^2}} = \dfrac{1}{\sqrt{1+\tan^2 \gamma(z)}}$.

5. The method of claim 1 further comprising weighting at least one of i) a plurality of said selected frequencies at a depth level and ii) a plurality of said imaged frequencies at a depth level.

6. A digital computer programmed to utilize seismic data traces obtained over a region of the earth's subsurface to perform a process comprising:

(a) forming a gather of seismic data traces;

(b) transforming said seismic data to a frequency domain;

(c) forming a plurality of minimal frequency subsets comprising selected frequencies;

(d) imaging said selected frequencies to form frequency images; and

(e) compositing said frequency images to form a composited migration image.

7. The digital computer of claim 6 further programmed to perform a process for forming said plurality of minimal frequency subsets by selecting frequencies for the minimal frequency subsets according to $f_n = a(z)^{-n} f_0$ for $n = 0$ to $n = N$ where

$$N = \frac{\log f_0 - \log f_1}{\log \alpha(z)}.$$

8. The digital computer of claim 6 further programmed to perform a process for reducing the number of frequencies as depth increases.

9. The digital computer of claim 6 further programmed to perform a process for reducing the number of frequencies as depth increases according to

$$\alpha(z) = \frac{1}{\sqrt{1+\left(\frac{k_h}{k_z}\right)^2}} = \frac{1}{\sqrt{1+\tan^2\gamma(z)}}$$

10. The digital computer of claim 6 further programmed to perform a process for weighting at least one of i) a plurality of said selected frequencies at a depth level and ii) a plurality of said imaged frequencies at a depth level.

11. A system for processing seismic data obtained over a region of the earth's subsurface comprising:

a) acquiring seismic data;

b) transforming said seismic data to a frequency domain;

c) forming a plurality of minimal frequency subsets comprising selected frequencies;

d) imaging said selected frequencies to form frequency images; and

(f) compositing said frequency images to form a composited migration image

12. The system of claim 11 wherein forming said plurality of minimal frequency subsets further comprises selecting frequencies for the minimal frequency subsets according to $f_n = a(z)^{-n} f_0$ for $n = 0$ to $n = N$ where $N = \frac{\log f_0 - \log f_1}{\log \alpha(z)}$.

13. The system of claim 11 further comprising reducing the number of frequencies as depth increases.

14. The system of claim 11 further comprising reducing the number of frequencies as depth increases according to $\alpha(z) = \frac{1}{\sqrt{1+\left(\frac{k_h}{k_z}\right)^2}} = \frac{1}{\sqrt{1+\tan^2\gamma(z)}}$.

15. The system of claim 11 further comprising weighting at least one of i) a plurality of said selected frequencies at a depth level and ii) a plurality of said imaged frequencies at a depth level.

16. A method for processing seismic data comprising:

a) acquiring seismic data;

b) transforming said seismic data to a frequency domain;

c) forming a plurality of minimal frequency subsets comprising selected frequencies, said selected frequencies in the range (f_0, f_1) for the minimal frequency subsets selected according to $f_n = a(z)^{-n} f_0$ for $n = 0$ to $n = N$ where

$$N = \frac{\log f_0 - \log f_1}{\log \alpha(z)}.;$$

d) imaging said selected frequencies to form frequency images; and

e) compositing said frequency images to form a composited migration image.

17. The method of claim 16 further comprising reducing the number of frequencies as depth increases.

18. The method of claim 16 further comprising reducing the number of frequencies as depth increases according to $\alpha(z) = \frac{1}{\sqrt{1+\left(\frac{k_h}{k_z}\right)^2}} = \frac{1}{\sqrt{1+\tan^2\gamma(z)}}$.

19. A digital computer programmed to utilize seismic data traces obtained over a region of the earth's subsurface to perform a process comprising:

a) forming a gather of seismic data traces;

b) transforming said seismic data to a frequency domain;

c) forming a plurality of minimal frequency subsets comprising selected frequencies, said selected frequencies in the range (f_0, f_1) for the minimal frequency subsets selected according to $f_n = a(z)^{-n} f_0$ for $n = 0$ to $n = N$ where

$$N = \frac{\log f_0 - \log f_1}{\log \alpha(z)} .;$$

d) imaging said selected frequencies to form frequency images; and

e) compositing said frequency images to form a composited migration image.

20. The digital computer of claim 19 further programmed to perform a process for reducing the number of frequencies as depth increases.

21. The digital computer of claim 19 further programmed to perform a process for reducing the number of frequencies as depth increases according to

$$\alpha(z) = \frac{1}{\sqrt{1+\left(\frac{k_h}{k_z}\right)^2}} = \frac{1}{\sqrt{1+\tan^2 \cdot \gamma(z)}}.$$